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EXAMINER	
LANDAU, MATTHEW C	
ART UNIT	PAPER NUMBER
2815	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/823,298	BAUMLER, JUERGEN	
	Examiner	Art Unit	
	Matthew Landau	2815	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *04 December 2002* .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-6,8-13 and 24-43* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-6,8-13,24-26 and 29-40* is/are rejected.

7)☒ Claim(s) *27,28 and 41-43* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *29 March 2001* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☒ The proposed drawing correction filed on *04 December 2002* is: a)☒ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Drawings

1. The corrected or substitute drawings were received on December 4, 2002. These drawings are acceptable.

2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the following features must be shown or the features canceled from the claims: the leading edge point, the trailing edge point, and the cylindrical axis defining an acute angle within the full angular extent of said cylindrical form (claim 1); the end portion of each shaft having a varying radius of curvature (claim 26); the flange angularly overlapping a cylindrical cross-sectional perimeter of said blowers by less than 50% (claim 31); the flange not overlapping a downstream arc of a cylindrical cross-sectional perimeter of said blowers (claim 32); the downstream arc defined between said flange and said discharge volume (claim 33); and the end portions of each shaft having a varying radius of curvature.

No new matter should be entered.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Objections

3. Claim 1 is objected to because the limitation "together define an adjacent cylindrical form to the internal..." is confusing. It is suggested the limitation be changed to read "together define [an adjacent] a cylindrical form adjacent to the internal...".

4. Claims 25-30 are objected to because of the following informalities: the claims are drawn to "The cross-flow blower". Claim 24, from which these claims depend, is drawn to "A gas discharge laser". The preambles of the dependent claims should correspond to the preamble of the independent claim. Also, claims 29 and 30 depend from claims that have been cancelled.

Appropriate correction is required.

Specification

5. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: the following claimed features are not defined in the specification:

Claim 1 – "...define an acute angle within the full angular extent of said cylindrical form";

Claim 31 – "...said flange angularly overlaps a cylindrical cross-sectional perimeter of said blowers by less than 50%"; and

Claim 32 – "...said flange angularly does not overlap a downstream arc of a cylindrical cross-sectional perimeter of said blowers".

Claim Rejections - 35 USC § 112

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claims 1-6, 8-13, 26, and 31-37 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In regards to claim 1, the limitation there is insufficient antecedent basis for the limitation "said cylindrical form". The claim defines two cylindrical forms, therefore it is unclear which cylindrical form this limitation refers to. In addition, the limitation "wherein the leading edge point, the trailing edge point and the cylindrical axis define an acute angle within the full angular extent of said cylindrical form" (emphasis added) renders the claim indefinite. It cannot be determined from the specification or the drawings what is meant by this limitation and how it further structurally defines the claimed invention.

In regards to claim 2, the limitation "said flange not coupling to said lower electrode support" renders the claim indefinite. The flange must be coupled (indirectly) to the lower electrode support since both elements are contained within the housing.

Claim 8 recites the limitations "the flange cross-section", "the flow", "the second end", and "the upper electrode". There is insufficient antecedent basis for this limitation in the claim.

In regards to claim 31, the limitation "said flange angularly overlaps a cylindrical cross-sectional perimeter of said blowers by less than 50%" (emphasis added) renders the claim

indefinite. It cannot be determined from the specification or the drawings what is meant by this limitation. It is unclear what is meant by angularly overlaps. It is also unclear how a flange overlaps a blower, and how one would determine the percentage of overlap.

In regards to claim 26, the limitation "a varying radius of curvature" renders the claim indefinite. It is unclear what is meant by this limitation. Does Applicant intend to claim an end portion that bends or flexes during operation?

In regards to claim 32, the limitation, "said flange angularly does not overlap a downstream arc" renders the claim indefinite. It cannot be determined from the specification or the drawings what is meant by this limitation and how it further structurally defines the claimed invention. It is unclear what is meant by "downstream arc", and therefore it is unclear how a flange does or does not overlap this downstream arc.

In regards to claim 33, the limitation "said downstream arc is defined between said flange and said discharge volume" renders the claim indefinite. It is unclear how a flange and discharge region can define an arc.

Claim Rejections - 35 USC § 102

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an

international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

9. Claims 1, 9, 10, 32, 33, 36, and 37 are rejected under 35 U.S.C. 102(b) as being anticipated by the admitted prior art.

In regards to claim 1, as best the examiner can ascertain the claimed invention, Figures 3, 4, and 5 of the instant application disclose a gas discharge laser, comprising: a housing 211, a first electrode 207; and second electrode 208; a second electrode support 209; a first cross-flow blower section 63a, comprising a plurality of radial blades, further comprising a plurality of internal hubs and two end hubs, each of said internal and end hubs coupling with a first shaft and together define a cylindrical form extending along a cylindrical axis of the blower; a second cross-flow blower section 63b, comprising a plurality of radial blades, further comprising a plurality of end hubs and two end hubs, each of said internal and end hubs coupling with a second shaft and together define an adjacent cylindrical form to the end hubs of the first cross-blower section and extending to and along a same cylindrical axis of the second cross-flow blower as the first cross-flow blower; a flange 65 coupling the first and second shafts of the first and second blowers, respectively, and to the housing; said flange also comprising two edges, a leading edge and a trailing edge, wherein the leading edge couples to the housing at a leading edge point, and wherein the trailing edge couples to the housing at a trailing edge point, and wherein the leading edge point, the trailing edge point, and the cylindrical axis define an acute angle within the full angular extent of said cylindrical form.

In regards to claims 9 and 10, US Patent No. 5,870,420, which had been incorporated by reference into Applicant's disclosure (page 3, lines 3-6 of the instant specification), discloses

radial blades, internal hubs, and end hubs all formed from aluminum alloy (column 2, lines 14-16). Therefore, the admitted prior art encompasses radial blades, internal hubs, and end hubs all formed from aluminum alloy.

In regards to claim 32, as best the examiner can ascertain the claimed invention, Figures 4 and 5 of the instant application disclose a gas discharge laser 200, comprising: a laser tube filled with a gas mixture; a plurality of electrodes (207 and 208) within the discharge chamber for energizing the gas mixture, said plurality of electrodes including a pair of main discharge electrodes (207 and 208) spaced apart by a discharge volume; an optical resonator for generating a laser beam; and a cross-flow blower assembly (202/203) including a pair of longitudinally adjacent and coaxially disposed cylindrical cross-flow blowers (202 and 203), and a flange 201 supportingly disposed between said pair of cross-flow blowers, wherein said flange angularly does not overlap a downstream arc of a cylindrical cross-sectional perimeter of said blowers.

In regards to claim 33, as best the examiner can ascertain the claimed invention, Figures 4 and 5 of the instant application disclose said downstream arc is defined between said flange 201 and said discharge volume within a cross-section of said laser permitting substantial interflow between portions of the gas mixture circulated by each of said pair of blowers before said portions reach the discharge volume.

In regards to claim 36, the limitation "wherein said flange is coupled to the electrode support bar" appears to be directed to a non-elected species (Figure 9 of the instant application). However, it is the position of the Examiner that the flange is coupled to the electrode support bar via the housing. Therefore, the limitation is given a broad interpretation wherein the term "coupled" is equivalent to "indirectly coupled". As best the examiner can ascertain the claimed

invention, Figures 4 and 5 of the instant application discloses an electrode support bar 209 for supporting one of the main discharge electrodes (207 and 208) wherein said flange is coupled to the electrode support bar.

In regards to claim 37, Figures 4 and 5 of the instant application disclose said flange 201 further couples said blowers to said support housing.

10. Claims 31-33 are rejected under 35 U.S.C. 102(b) as being anticipated by Hoag.

In regards to claim 31, as best the examiner can ascertain the claimed invention, Figures 2 and 6 of Hoag discloses a gas discharge laser, comprising: a laser tube filled with a gas mixture; a plurality of electrodes (19U and 19D), including a pair of main discharge electrodes (19U and 19D), within the discharge chamber DS for energizing the gas mixture; a optical resonator for generating a laser beam (see column 11, lines 21-37); and a cross-flow blower assembly 21 including a pair of longitudinally adjacent and coaxially disposed cylindrical cross-flow blowers (63a and 63b), and a flange 65b supportingly disposed between said pair of cross-flow blowers, wherein said flange angularly overlaps a cylindrical cross-sectional perimeter of said blowers by less than 50%.

In regards to claim 32, as best the examiner can ascertain the claimed invention, Figures 2 and 6 of Hoag disclose a gas discharge laser, comprising: a laser tube filled with a gas mixture; a plurality of electrodes (19U and 19D) within the discharge chamber DS for energizing the gas mixture, said plurality of electrodes (19U and 19D) including a pair of main discharge electrodes (19U and 19D) spaced apart by a discharge volume; an optical resonator (see column 11, lines 21-37) for generating a laser beam; and a cross-flow blower assembly 21 including a pair of

longitudinally adjacent and coaxially disposed cylindrical cross-flow blowers (63a and 63b), and a flange 65b supportingly disposed between said pair of cross-flow blowers, wherein said flange angularly does not overlap a downstream arc of a cylindrical cross-sectional perimeter of said blowers.

In regards to claim 33, as best the examiner can ascertain the claimed invention, Figure 2 of Hoag discloses said downstream arc is defined between said flange 65b and said discharge volume DS within a cross-section of said laser permitting substantial interflow between portions of the gas mixture circulated by each of said pair of blowers before said portions reach the discharge volume.

11. Claims 24, 25, 38, 39, and 40 are rejected under 35 U.S.C. 102(e) as being anticipated by Webb (US Pat. 6,208,675).

In regards to claim 24, Figures 4-8 of Webb disclose a gas discharge laser, comprising: a housing 12/14; an upper electrode 24; a lower electrode 26; a lower electrode support 30; and a cross-flow blower 70, comprising a first shaft 72 and a second shaft 73, wherein each of the shafts comprise an end portion. Figure 8 of Webb discloses each end portion includes a center cross-sectional area (corresponding to part 74B), a first end cross-sectional area (corresponding to the part immediately to the right of 74B), and a second end cross-sectional area (corresponding to part 78B), wherein the center cross-sectional area has a diameter greater than the diameter of the first end cross-sectional area, and wherein the center cross-sectional area has a diameter greater than the second end cross-sectional area.

In regards to claim 25, Figures 6-8 of Webb disclose each shaft end portion has no curvature, therefore each shaft end portion has a constant radius of curvature

In regards to claim 38, Figures 4-8 of Webb disclose a gas discharge laser, comprising: a laser tube defined by a support housing 12/14 filled with a gas mixture; a plurality of electrodes (24 and 26) defining a discharge volume within the laser tube, the electrodes for energizing the gas mixture, said plurality of electrodes including first and second main discharge electrodes spaced apart by the discharge volume; an optical resonator for generating a laser beam; and a cross-flow blower assembly 70 for circulating the gas mixture through said discharge volume, said cross-flow blower assembly including a shaft 73, said shaft including a coupling segment (74B/76B/78B) with a longitudinally non-uniform thickness. The intended use limitation beginning "such that when said blower..." does not patentably distinguish the claimed invention over the prior art.

In regards to claim 39, Figure 8 of Webb discloses the coupling segment (74B/76B/78B) includes a narrowed end portion 78B, which is slightly thinner than a thicker middle portion 76B.

In regards to claim 40, Figure 8 of Webb discloses the coupling segment (74B/76B/78B) is rounded.

Claim Rejections - 35 USC § 103

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

13. Claims 4, 5, 6, 11, and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over the admitted prior art in view of Hofmann.

In regards to claim 4, the difference between the admitted prior art and the claimed invention is the radial blades have a first radius of curvature of a top surface smaller than a second radius of curvature of a bottom surface. Figure 3c of Hofmann discloses a tangential blower with a radial blade 320 having a first radius of curvature of a top surface greater than a second radius of curvature of a bottom surface. In view of such teaching, it would have been obvious to the ordinary artisan at the time the invention was made to modify the invention of the admitted prior art by including the radial blades of Hofmann for the purpose of increasing the aerodynamic efficiency.

In regards to claim 5, the difference between the admitted prior art and the claimed invention is the radial blades have a cross-section shaped like an airfoil. Figure 3c of Hofmann discloses a radial blade 320 with a cross-section shaped like an airfoil. In view of such teaching, it would have been obvious to the ordinary artisan at the time the invention was made to modify the invention of the admitted prior art by including the radial blades of Hofmann for the purpose of increasing the aerodynamic efficiency.

In regards to claim 6, the difference between the admitted prior art and the claimed invention is the inner and outer surfaces of the blades have different radii of curvature. Figure 3c of Hofmann discloses a radial blade 320 wherein the inner and outer surfaces of the blade have different radii of curvature. In view of such teaching, it would have been obvious to the ordinary artisan at the time the invention was made to modify the invention of the admitted prior art by including the radial blades of Hofmann for the purpose of increasing the aerodynamic efficiency.

In regards to claims 11 and 12, the difference between the admitted prior art and the claimed invention is the radial blades, end hubs, and internal hubs are formed from magnesium or titanium alloy. Hofmann discloses radial blades, end hubs, and internal hubs formed from magnesium and titanium alloy (column 9, lines 30-35). In view of such teaching, it would have been obvious to the ordinary artisan at the time the invention was made to modify the invention of the admitted prior art by using the materials of Hofmann for the purpose of selecting lightweight, durable materials.

14. Claims 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over the admitted prior art in view of Immell et al. (US Pat. 6,250,886, hereinafter Immell).

In regards to claim 13, the difference between the admitted prior art and the claimed invention is the radial blades, end hubs, and internal hubs are formed from steel. Immell discloses a fan with radial blades constructed from steel (column 4, lines 22-25). In view of such teaching, it would have been obvious to the ordinary artisan at the time the invention was made to modify the invention of the admitted prior art by using steel for the blower components for the purpose of selecting a durable material.

15. Claims 29 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Webb in view of Hofmann.

In regards to claim 29, Figure 6 of Webb discloses the blower 70 further comprises radial blades 102, a plurality of internal hubs, and two end hubs (104A and 104B). The difference between Webb and the claimed invention is the radial blades, internal hubs, and end hubs are cast as a single piece. Figure 2a of Hofmann discloses a cross-flow blower wherein the blades, end hubs, and internal hubs are monolithically cast (cast as a single piece) (column 7, lines 25-27). In view of such teaching, it would have been obvious to the ordinary artisan at the time the invention was made to modify the invention of Webb by casting the blower components as a single piece to increase the stability of the blower.

In regards to claim 30, Webb discloses the shafts and end hubs comprise different materials. It is considered the shaft comprises aluminum (column 6, lines 22-25) and the end hubs comprise monel (column 7, lines 53-55).

Allowable Subject Matter

16. The indicated allowability of claim 1 is withdrawn since the amended claim no longer contains the previously indicated allowable subject matter.

17. Claims 2, 3, 8, 34, and 35 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the

limitations of the base claim and any intervening claims. The following is a statement of reasons for the indication of allowable subject matter:

In regards to claim 2, the prior art of record does not disclose or suggest said flange not coupling to said lower electrode support.

In regards to claims 3 and 8, the prior art of record does not disclose or suggest a cross-section of the flange has an aerodynamic shape with respect to a direction of the flow of laser gas.

In regards to claims 34 and 35, the prior art of record does not disclose or suggest the flange not coupled directly to the electrode support bar.

18. Claims 27, 28, and 41-42 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The following is a statement of reasons for the indication of allowable subject matter:

In regards to claim 27, the prior art of record does not disclose or suggest each of the end portions comprise a minimum diameter D_{min} and wherein D_{max}- D_{min} is approximately .02 millimeters.

In regards to claim 28, the prior art of record does not disclose or suggest each of the end portions comprise a minimum diameter D_{min} and wherein D_{max}- D_{min} is in the range of .005 to .05 millimeters.

In regards to claims 41 and 42, the prior art of record does not disclose or suggest a difference in maximum and minimum thickness of said coupling segment is less than 1.0 mm, and more than 0.005mm.

In regards to claim 43, the prior art of record does not disclose or suggest a difference in maximum and minimum thickness of said coupling segment is between 0.005mm and 0.05mm.

Response to Arguments

19. Applicant's arguments with respect to claims 31-33 and 38-40 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

20. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

21. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Matthew C. Landau whose telephone number is (703) 305-4396.

The examiner can normally be reached from 8:00 AM-4: 30 PM. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eddie Lee can be reached on (703) 308-1690. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7722 for regular communications and (703) 308-7722 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

EDDIE LEE
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800

Matthew C. Landau

Examiner

February 28, 2003